Task: 5390

State of Utah
DEPARTMENT OF NATURAL RESOURCES

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May 14, 2013

Lon Thomas
Star Stone Quarries
4040 South 300 West
Salt Lake City, Utah 84107

Subject: Second Review of Amended Notice of Intention to Commence Large Mining Operations, Star Stone Quarries, Heber Quarry, M/051/0001, Wasatch County, Utah

Dear Mr. Thomas:

The Division of Oil, Gas and Mining has reviewed the referenced amended Notice of Intention to Commence Large Mining Operations (NOI) which was received April 4, 2013. The attached comments will need to be addressed before the amendment can be incorporated into the plan.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by submitting replacement pages in redline and strikeout text. After the notice is determined technically complete, the Division will ask that you submit two clean copies of the complete and corrected plan. Upon final approval, these copies will be stamped approved, and one will be returned for your records.

Please submit your response to this review by June 28, 2013.

The Division will suspend further review until your response is received. If you have any questions regarding the review, please contact me (pbb) at 801-538-5261, or the appropriate reviewer: Leslie Heppler (lah) at 801-538-5257. Peter Brinton (pnb) at 801-538-5258, Wayne Western (whw) at 801-538-5263, or Lynn Kunzler (lk) at 801-538-5310. Thank you for your cooperation in submitting the revised NOI.

Sincerely,

Peter Brinton for

Paul B. Baker
Minerals Program Manager

PBB:lah:eb
Attachment: Review
P:\GROUPS\MINERALS\WP\M051-Wasatch\M0510001-HeberQuarry\final\REV2-5390-05132013.docx

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UTAH DNR
OIL, GAS & MINING

Second REVIEW OF AMENDMENT NOTICEOF INTENTION TO COMMENCE LARGE MINING OPERATIONS

Star Stone Quarries
Heber Quarry

M/051/0001
May 14, 2013

General Comments:

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
1	General	Submittal should be formatted to easily incorporate additional revisions and amendments.	lah	
2	General	The Division may have additional comments based on the response to this review.	lah	
3	Appendix 6 page 8	This section of the plan says water bars are used which implies that water will be discharged, but the next section, 1.7, notes "That no waters that receive a discharge from our facility . . . ." Please clarify these statements to eliminate conflicts.	lah	
4	Appendix 6 page 11, 5.1.1	Please add clarification regarding "water bars." Are water bars designed to reduce potential of erosion off the mine disturbance?	pnb lah	
5	Appendix 6 page 11, 5.1.3	Distinguish the difference between perimeter dykes and earthen dykes, and update any of the main body of the NOI text if needed.	pnb	

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
6	Map 3a	Include the following features from Map 1.6 in the SWPPP on Map 3a: 1) "Natural Water Drainage Areas" (connected appropriately to form watershed boundaries), 2) "Ridge Water Divisions" (indicate whether they are ephemeral or not), and 3) "Perimeter Dykes".	pnb	Revised - See old comment 14
7	Map 2	Add disturbed acres from pages 11 and 12.	lah	
8	Map 3a	Map 1.6 shows different numbers and locations of water bars on the road. Correct both maps as needed so that they are up-to-date and consistent. Will water bars divert runoff to small rock check dams (or sediment catch basins)?	pnb, lah	Revised - See old comment 14
9	Maps 10a,b,c,d,	More labels are needed. The maximum slope angle for the rock slope (ie 1H:1V, as noted in text) needs to be noted on cross sections. As drawn, the slope angles are steeper than 45 degrees. A good rule of thumb for the angle of fill slopes before they are pushed down for reclamation is 37 degrees (angle of repose). Please note the commitment on page 21 A.1. to regrade slopes to less than 45 percent.	lah	
10	Map 5	Vegetation transect is shown on barren ground.	lah	

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
11	Map 5a	Since the sediment catch basins/traps are going to remain after reclamation (page 22), they should be shown on this and other reclamation maps. Any other water control structures (including the perimeter dykes from the SWPPP and water bars on the road) should also be shown, if they are to remain after reclamation.	pnb	

105.4 - Photographs

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
12		No photos have been included. The Division recommends including photographs.	lah	

R647-4-106 - Operation Plan

106.3 - Estimated acreages disturbed, reclaimed, annually

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
13	Page 11	Roads need to be included in the totals in each case presented on page 5. There are over 4400 feet of roads. At 30 feet in width the disturbance is greater than three acres.	lah	
14	Page 5	The estimated acres shown on page 5 need to be added to map #2.	lah	

106.4 - Nature of materials mined, waste and estimated tonnages

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
15	Page12	Please correct the table that shows only 0.2 ft of overburden. Three paragraphs below the table, overburden is defined as topsoil, subsoil and fine rock. With this being the case, it is impossible to salvage an average of nine inches (0.75 feet) of topsoil on the areas planned for disturbance over during the next five years.	lk	

106.5 - Existing soil types, location, amount

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
16	Page 7	The plans for the borrow area have been removed. The borrow area was required originally due to the lack of salvageable soil. This borrow area needs to remain part of the NOI until it is demonstrated that there is sufficient salvaged topsoil (or suitable substitute material) stockpiled on site. The soil lab analysis that would help determine whether fines are suitable was not provided with this submittal. Topsoil pile # 3 is an area that received interim reclamation after waste rock had been dumped outside (at that time) the permitted area. Recent photos of areas shown as topsoil stockpiles are not topsoil, but waste rock or gravel. Currently, it has not been demonstrated that sufficient soil material exists for reclamation. Therefore the need for the borrow area is still relevant.	lk	

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
17	omission	While volumes have been assigned to various topsoil stockpiles, past inspections show that there is no or very little topsoil at these locations. Please correct.	lk	
18	Page 11	The NOI says, ". . . dump fines and waste material, suitable for reclamation will be stored . . . at a location to be determined." Map 4 purports to show waste storage areas, but if the locations are to be determined, are the locations shown on Map 4 conceptual? What criteria will be used to determine whether dump fines and waste material will be suitable? Assuming that these materials may be suitable, the locations for the stockpiles need to be shown on a map now, not to be determined later. The plan to use composted manure has been removed, as well as the proposal from the last submittal to use mulch. Composted manure or biosolids were originally added to improve organic matter content of the soil material (all soil samples show the organic matter content to be low). Please revert back to using the 10 tons/acre of composted manure or biosolids, or provide an alternative plan to increase the organic content of the soil material to be used for reclamation.	lk	

106.8 - Depth to groundwater, extent of overburden, geology

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
19	Page 9	As written on February 4, 2013, "Include information on the elevation of the final quarry floor and the elevation of water in the surrounding wells." This information is still needed in the text. Please call for clarification of this comment.	lah	

R647-4-107–Operation Practices

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
20	Page 17 107.3	Additional discussion is needed with the Division regarding water bars, as there are several other more effective water management practices. Please call the Division.	lah	
21	Page 17, 107.3	Add discussion of the sediment basins/traps and perimeter dykes (shown on the SWPPP map 1.6).	pnb	

R647-4-109 - Impact Assessment

109.1 - Impacts to surface & groundwater systems

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
22	Page 20, para 1 (4.)	Add discussion about perimeter dykes in the text (as shown in the SWPPP).	pnb	

109.3 - Impacts on existing soils resources

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
23	Page 13	Include a commitment in the text to include the scrub oak in the topsoil stockpiles.	lah	

109.4 - Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
24	Page 14	Consider evaluating storm water runoff for the entire area projected to be disturbed by long-term mining.	pnb	
25	Page 18 3.	Include a statement that limits the pounds of explosives per eight millisecond delay to limit vibration to a mitigation level that is acceptable.	lah	
26	Page 20, para 4 (2.)	Since the Division's files indicate that past storm events deposited sediments from the permit area on the public road and possibly in Lake Creek, and since some erosion on the south-facing slopes below the road is visible, it is incorrect to state that there is "negligible water drainage" and incomplete to state that "The erosion potential is minor." Acknowledge in the text that sedimentation has occurred from observed runoff in the past.	pnb	

109.5 - Actions to mitigate any impacts

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
27	Page 20, para 5 (4.	Discuss actions to prevent and/or mitigate sedimentation effects by briefly summarizing only the main actions of the SWPPP. Refer to Appendix 6. Specifically, identify both the purpose of the perimeter dykes in erosion control and their maintenance. Would there be small rock check dams (or sediment catch basins) at the locations of the water bars?	pnb	
28	Page 14	Under Section 109.5 include a statement that limits the pounds of explosives per 8 millisecond delay to limit vibration to a mitigation level that is acceptable.	lah	

R647-4-110 - Reclamation Plan

110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
29	Page 21 B.2.	The plan says, ". . . waste dumps will be sloped to a regraded topographic slope of 1H:1V or less." It is physically impossible to have a dump slope of 1H:1V. Please rewrite this statement and show a slope that is physically possible.	lah	
30	Page 15 B.1.	Include in the Appendix the documents relating to Blasting for Reclamation, and refer in the text to the Appendix.	lah	

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
31	Page 22, para 5	Consistent with the SWPPP, the NOI states that: "Pit and roads will be sloped so ponding will not occur." With this, the plan needs to show how sedimentation will be controlled post-reclamation. Ponding is not necessarily prohibited or undesirable. Identify how grading of slopes to avoid ponding will mitigate impacts and meet the post-mining land use. In some scenarios, controlling runoff by creating internal drainage may be preferable to trying to control long-term external runoff. Alternatively, this could potentially be done by grading quarry slopes to create internal drainage.	pnb	
32	Page 15	As written in the February 4, 2013, review, "The Division suggests creating a localized sediment catchment basin on the uppermost level of the mine, at the topographic low of the bench level." To restate the request: please address the hydrology issues of the upper level of the mine. Please show erosion and sediment control.	lah	

110.3 - Description of facilities to be left (post mining use)

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
33	Page 16	Include in the description the width of the access road to be left.	lah	
34	Page 22, para 9 (110.3)	On this page in 111.8 on page 25, indicate what other drainage control structures, such as the perimeter dykes and water bars along the road, are planned to be left for the postmining land use.	pnb	Revised – See old 63, SWPPP
35	Page 22, Section 110.3, and Maps 5a and 6	Map 6 shows "ultimate reclamation" which includes one access road, but Section 110.3 of the text says, "The two, 30' wide main access roads will be left to provide access to and across the property for post mine use." While this statement in the text may be referring to an intermediate stage of the mine and reclamation (see Map 5a), it implies there will be two access roads at final reclamation which is in conflict with Map 6. Please revise the plan to make these sections consistent and to clarify the reclamation plan.	pbb	

110.5 - Revegetation planting program

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
36	Page 17	What criteria will be used to determine if fertilizer is needed? Based on the current soil analysis provided, it is unlikely that the use of commercial fertilizers will be needed. It was previously determined that organic matter was low. The use of composted manure was to correct this deficiency. How will organic matter be increased if composted manure is not to be used, especially in the fines?	lk	

R647-4-111 – Reclamation Practices

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
37	Page 24, 111.3	After reclamation, will water bars divert water to small rock check dams (or sediment catch basins)?	pnb	
38	Page 24, 111.3	The Division often encourages the use of rock check dams as possible alternatives to straw bales for erosion control.	pnb	
39	Page 25 111.6	The text uses the slope measurement of "1V:3H." Please use the English format as "3H:1V."	lah	

R647-4-112 – Variance

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
40	Page 25	A variance has been requested for access to be left after five years of reclamation, but not after final reclamation. Please provide written text justification for leaving multiple access roads. Written justification is also needed for a road width of 30 feet.	lah	

R647-4-113 – Surety

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
41	p. 21	The operator proposes to reclaim the waste dumps to a topography of 1H:1V. The Division does not consider such a slope to be stable. Please either regrade the slopes to 2H:1V or provide supporting information why such slopes would be stable	whw	
42	p. 21	On page 21, the operator replaced the phase, "Highwalls will be decreased to 45 degrees or less by blasting off the highwall to decrease the slope," with "Highwalls will be decreased to 45 degrees or less by mining or excavating the highwall to decrease the slope." Yet the original estimate for resloping pit highwalls was removed from the bond estimate. Please explain why no reclamation costs will be associated with highwall elimination. The Division needs to assume a worst case scenario where the highwall is left in a condition as it was during mining operations.	whw	
43	Appendix 8	There is a line item for general site cleanup and trash removal, but there are no costs associated with transporting the material or disposing of it. Please include such costs.	whw	
44	Appendix 8	Please show the costs associated with transporting quarry fines from the waste rock site to areas which will be covered in subsoil.	whw	
45	Appendix 8	Please include costs for transporting subsoil and topsoil to the sites where the material will be deposited.	whw	
46	p. 22 and Appendix 8	Please include costs for reestablishing natural drainages.	whw	
47	p. 22 and Appendix 8	Please include line items for removal/disposal of the 500-gallon fuel tank and other fluids, oils and grease.	whw	
48	p. 22 and Appendix 8	Please include costs for removal/disposal of trailers and scales.	whw	

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
49	Appendix 8	Please supply the original input and output data.	whw	
50	Appendix 8	Please supply supporting data for volumes of materials to be move and the haul distances.	whw	
51	p. 22 and Appendix 8	The plan says a front end loader will be used to transport materials, but there are no mobilization/demobilization costs for the front end loader. Neither are there any costs associated with the loader's operator.	whw	
52	p. 22 and Appendix 8	Topsoil and subsoil would usually be transported by a truck instead of a front end loader. Please explain why no trucks would be used.	whw	
53	p. 9 and Appendix 8	Please include removal/disposal costs for utilities and power lines.	whw	